Quality Control

Work Orde October-19-12 12		· . · · · · · · · · · · · · · · · · · ·		*918	868*						Page 1
Revision ID:	D412-666-011 Gross Weight Towing	g		Accept	*N900	040	100)* s	Setup Start Stop	1 71	S1* S2*
Start Date: 1 Required Date: 1 Reference:		rt Qty: 2.00 'd Qty: 2.00	*2* *2*		Cust Item l Customer:	ID:					
	Process Plan:	- N	Date: /	Tooling: SPC (Y/N):		ate:		F	Run Start Stop		R1* R2*
Sequence ID/ Work Center ID		ration ription		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty		Reject Number	Insp. Stamp
Draw Nbr	Revision	Nbr									
IIN D412-666	Rev C1	Ì									
*100 *100* DC Document Control	DOC	UMENT CONTRO Memo Photocopy I	OL bluefile & type labels per P	0.00 16 0.00 PP412-666-011 C	12/w/27 2HG 004 JB			H) dor 11	MLJ 12	2-10- 25
*110 *110* Packaging Packaging	Pick I	Kit Memo		0.00							17/10/24/
*120 *120*	QC4-	- 100% Inspect kits	for completeness	0.00 AS	Plulis			(+7)			
QC		Memo		J. 0	•						

NCR: Y	es / No				WORK ORDER NON-	CON	IFORN	MANCE / UP	DATE	QA Closed:	Date	<u>.</u>
Work Orde	r:				DISPOSITION	,		a []	AGAINST DE	PARTMENT,	_	7
Part N	lo				Rework Scrap Use-as-is		ſ	Skid-tube Machining Moforming	Crosstube Small Fab Finishing	-∤	Water Jet d. Eng. Coor.	Engineering Quality Other
NCR N	lo				Work Order Update]		Large Fab	Composite	<u> </u>	Supplier	
Root				Descri	ption of work order update	lr	nitial	Act	tion	Sign &		
Cause	Date	Step	Qty	(or Non-conformance	Chi	ef Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data												
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<u> </u>	Bending			<u></u>	Bend	Ш	Grain			Ovalized		Pressure/Forced
	Centre No	ot Conce	ntric to C)/S	BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure
	Cracks				Broken/Damaged		Inspecti	on Incomplete		Part Incorre	ct [Weld
	Crushed/	Crimped.			Burrs	Ш	Instruct	ions Incomplete/	Unclear	Part Lost/M	issing	Wrong Stock Pulled
	Cuffs				Contamination		Mainte	enance		Part Moved		
[Heat Trea	at			Countersink		Mislabe	led		Positioned V	Vrong _	_
	Inspectio	n Strip in	Tube		Cut Too Short		Misread	ł	Γ	Power Loss/	Surge	Other
	Ripples in	Bend			Drill Holes		Offset		<u> </u>			
ſ	Torque W	/aves in E	Extrusion		Drawing		Out of 0	Calibration				

Out of Sequence

Outside Dimensions

DQA:

Date:

Turning Sequence

Wave/Twist in Tube

Finish Folio

Work Order ID 91868 Page 2 October-19-12 12:51:13 PM Item ID: D412-666-011 Accept *N900040100* Setup Start **Revision ID:** Gross Weight Towing Item Name: Start Qty: 2.00 **Start Date:** 10/19/12 **Cust Item ID:** Req'd Qty: 2.00 Required Date: 11/02/12 **Customer:** Reference: Run Process Plan: Date: _____ Tooling: Approvals: Date: Stop Date:_____ SPC (Y/N): Date: Accept Reject Sequence ID/ Set Up/ Tool ID Tool # Plan Reject Operation Insp. **Work Center ID** Description Qty Number Stamp Code **Qty Run Hours** 0.00 130 Packaging *130* 0.00 Packaging Identify and pack for shipping as per PPP D412-666-Packaging 011Location: 121 PPP Rev: 140 QC21- Final Inspection - Work Order Release 0.00 *140* 0.00 QC Memo

Quality Control

1910-26

												DQA:	Da	te:	
NCR:	Yes	/ No				WORK ORDER NON-C	100	VFORN	ANCE / UPD	ATE					
												QA Closed:	Da	te:	
Work Orde	or:					DISPOSITION				AGAINST D	EF	PARTMENT	PROCESS		
Work Orde	٠					Rework	וו		Skid-tube	Crosstube	٦		Water Jet		Engineering
Part N	No.					Scrap	1		Machining	Small Fab	٦	Pro	d. Eng. Coor.		Quality
	•					Use-as-is	1	Therm	oforming	Finishing		Rec/Stor	e/Packaging		Other
NCR I	No.					Work Order Update		: :	Large Fab	Composite			Supplier		
Root					Descri	ption of work order update	Π	Initial	Acti	on		Sign &			
Cause		Date	Step	Qty	(or Non-conformance	Ch	nief Eng	Descr	iption		Date	Verificatio	n	QC Inspector
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		Centre N	ot Conce	ntric to	o/s	BOM/Route		Hardwa	re			Over/Under	tolerance		Temperature/Cure
		Cracks				Broken/Damaged		Inspecti	on Incomplete			Part Incorre	ct		Weld
		Crushed/	Crimped			Burrs		Instruct	ions Incomplete/U	Inclear		Part Lost/M	issing		Wrong Stock Pulled
		Cuffs				Contamination		Mainte	nance	· [Part Moved			
		Heat Trea	at			Countersink		Mislabe	led	Γ		Positioned V	Vrong		
		Inspectio	n Strip in	Tube		Cut Too Short		Misread	i			Power Loss/	Surge		Other
		Ripples ir	Bend			Drill Holes		Offset				•			

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Picklist Print

October-19-12 12:51:12 PM

Work Order ID:

91868

Parent Item:

D412-666-011

Parent Item Name:

Gross Weight Towing

Start Date: 10/19/12

Required Date: 11/02/12

Start Qty: 2.00

Required Qty: 2.00

Comments:

IPP Rev:B Added GHG 002 NG 02-03-06

	IPP Rev:C As pe	r Rev C JLM	07-09	-07 Verified	By:EC								
Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on e Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
ANG-USA Bolt		Purchased	No			110	Each	66.0000	0 3	8 -	JB		
P				Location ST341	422	Loc Oty 66	L	Loc Code	12	0423		Sm	B
ANG-95A		Purchased	No	120	423	66 110	Each	26.0000		8	J	B	
•				<u>Location</u> ST341		<u>Loc Qty</u> 26	<u>L</u>	oc Code			•	5 W	B
				122	993 348	16 10			12	2993			
AN960JD616 Washer	NAS1149D0663J	Purchased	No			110	Each	0.0000	8	16 302/	90	}	SMD
D2888 Lug		Manufactured	No			110	Each	8.0000	2	4	~ 1B		12/10/2
u				Location		Loc Qty	L	oc Code			V		
				ST479		8				0006			
				899	88	8			<u>- 8</u>	9988			

								-			DQA:	Date:	
NCR:	⁄es	/ No				WORK ORDER NON-C	O	VFORM	ANCE / UP	DATE		D. 1	
								,			QA Closed:	Date:	
Work Ord	or:					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
WOIK OIG	CI.	 -				Rework	1		Skid-tube	Crosstube]	Water Jet	Engineering
Part f	VΩ					Scrap	1	1	Machining	Small Fab	Pro	d. Eng. Coor.	Quality
	•••					Use-as-is	1		noforming	Finishing	4	re/Packaging	Other
NCR I	No.					Work Order Update	1		Large Fab	Composite]	Supplier	
													,
Root					Descri	ption of work order update	1	nitial		tion	Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Descr	ription	Date	Verification	QC Inspector
Doc/Data													
Equip/Tooling												•	
Operator						**							
Material													
Setup													
Other													
Process									1				
Supplier												ļ	
Training													Ì
Unapproved												<u> </u>	
							AUI	T CATE	GORY				
Landi	ng (Gear				General	_	7			٦	<u></u>	7
	<u> </u>	Bending				Bend		Grain			Ovalized		Pressure/Forced
	L	Centre No	ot Conce	ntric to	O/S	BOM/Route	_	Hardwa	re		Over/Under	<u> </u>	Temperature/Cure
	L	Cracks				Broken/Damaged	L	4 '	ion Incomplete	<u> </u>	Part Incorre		Weld
	L	Crushed/	Crimped		L	Burrs	L	Instruct	tions Incomplete/I	Unclear	Part Lost/M	lissing	Wrong Stock Pulled
		Cuffs				Contamination		Mainte	nance	<u></u>	Part Moved		
		Heat Trea	it			Countersink	L	Mislabe	eled		Positioned '	Wrong	-
		Inspection	n Strip in	Tube		Cut Too Short		Misread	Ł		Power Loss,	/Surge	Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Picklist Print

October-19-12 12:51:12 PM

October-19-12 12:31:12 PM

Work Order ID:

91868

Parent Item:

D412-666-011

Parent Item Name:

Gross Weight Towing

Start Date: 10/19/12

Required Date: 11/02/12

Page 2

Start Qty: 2.00

Required Qty: 2.00

MS21042146 Nut	Purchased	No	110 Eac	sh 951.0000	113021	JB 12/10/24
		Location	Loc Qty	Loc Code		<m></m>
		314	322			٠.
		122441	322		122441	
		ST300	279			
	•	117677	25		<u></u>	
		118384	3			
		118927	48			
		119075	4			
		120308	199			

350

350

ST314

123248

											DQA:	Date	:
NCR:	Yes	/ No				WORK ORDER NON-C	O	NFORN	MANCE / UPDA				
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Work Orde	∍r·					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Work Orac	_					Rework]		Skid-tube	Crosstube		Water Jet 🗍	Engineering
Part N	No.					Scrap		1	Machining	Small Fab	Pro	d. Eng. Coor.	Quality
	_					Use-as-is		Therm	oforming	Finishing	Rec/Stor	e/Packaging	Other
NCR N	۷o					Work Order Update			Large Fab (Composite		Supplier	
Root					Descri	ption of work order update		nitial	Action	n -	Sign &		
Cause		Date	Step	Qty	C	or Non-conformance	Ch	ief Eng	Descript	tion	Date	Verification	QC Inspector
Doc/Data							1			:			
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Process													
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Landi	ng G	ear				General		-			•	_	_
	Ш	Bending				Bend		Grain			Ovalized		Pressure/Forced
	Ш	Centre No	ot Concer	ntric to (o/s	BOM/Route	L	Hardwa	re		Over/Under	tolerance	Temperature/Cure
		Cracks				Broken/Damaged		Inspecti	on Incomplete		Part Incorre	ct _	Weld
Crushed/Crimped.				Burrs		Instruct	ions Incomplete/Und	clear	Part Lost/M	issing	Wrong Stock Pulled		
		Cuffs				Contamination		Mainte	nance		Part Moved		
		Heat Trea	it			Countersink		Mislabe	led		Positioned \	Vrong _	_
		Inspection	n Strip in	Tube		Cut Too Short		Misread	I		Power Loss/	'Surge	Other
	\Box	Ripples in	Bend			Drill Holes		Offset			-	_	

Out of Calibration

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Torque Waves in Extrusion

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

1.0 APPLICABILITY:

GROSS WEIGHT TOWING KIT D412-666-011 MAY BE INSTALLED ON DART D205-634-XXX OR D204-635-XXX OR D412-742-XXX SKIDTUBES INSTALLED ON 412 AIRCRAFT TO ALLOW GROUND HANDLING AT GROSS WEIGHT IN ACCORDANCE WITH BELL SERVICE INSTRUCTION BHT-412-SI-58. IT IS ALSO ACCEPTABLE TO INSTALL THIS KIT ON 204/205/210/212 AIRCRAFT EQUIPPED WITH DART SKIDTUBES IN ORDER TO PRESERVE THE LIFE OF THE AFT CROSSTUBES. THIS KIT CONTAINS ENOUGH PARTS TO INSTALL D2888 LUGS ON BOTH SKIDTUBES.

2.0 PARTS LIST:

ſ	QJY_ -011	PART	DESCRIPTION
ŀ	X	D412-666-011	GROSS WEIGHT TOWING KIT
ቱ		-D2888	-LUG
Ē	= 4=	FAN6-15A	-BOLT-32
1		-AN6-45A	BOLT 2
٦	-8-	-AN960JD616	-WASHER>
4	4	-MS21042L6	NUT-(or:MS21042-6)

3.0 WEIGHT AND BALANCE:

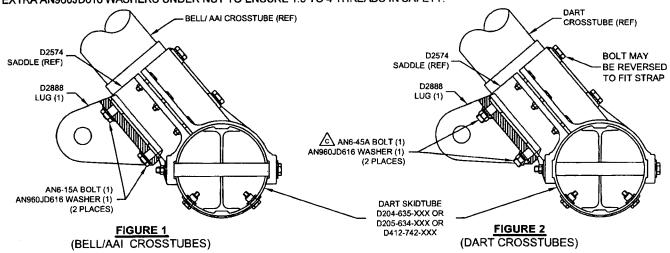
		LONGITUDINAL			
INSTALLATION	WEIGHT	ARM	MOMENT		
D412-666-011	1.90 lb	163.0 in	310 in lb		
1	0.86 kg	4.14 m	3.56 m kg		

4.0 PROCEDURE:

- REMOVE ANG-12A BOLTS (4) ON INBOARD SIDE OF AFT SADDLE AND DISCARD. ON LANDING GEAR WITH DART AFT CROSSTUBES, REMOVE (4) ANG-40A BOLTS.
- 2) INSTALL D2888 LUGS WITH AN6-15A BOLTS (2) AS SHOWN IN FIGURE 1. USE AN6-45A (2) BOLTS ON DART CROSSTUBES, AS SHOWN IN FIGURE 2.
- 3) TORQUE BOLTS TO 95-110 in-lb (10.7-12.4 N-m).

△5.0 NOTE:

IT IS ACCEPTABLE TO REPLACE THE ANG-15A/-45A BOLTS WITH LONGER OR SHORTER ANG BOLTS AS REQUIRED AND/OR INSTALL EXTRA ANGGUIDG16 WASHERS UNDER NUT TO ENSURE 1.5 TO 4 THREADS IN SAFETY.



DESIGN	A DADT AFDOCD	ACE.	LTD
REV.	DESCRIPTION	BY	DATE
Α	NEW ISSUE	CP	99.05.03
В	UPDATE KIT FOR BOTH SKIDTUBES AND COMPATIBILITY WITH DART CROSSTUBES	СР	02.03.04
С	- AN6-45A WAS AN6-43A, ADD NOTES - TO ENSURE COMPATIBILITY WITH D412-742-011/-013 - ESTIMATE (PARTS/PICK LIST) IS AFFECTED	МВ	07.08.09

REV.		DESCRIPTION	D T	DATE				
DESIGN	A It	DART AEROSE	ACE	CE LTD				
DRAWN	_4	HAWKESBURY, ONTARIO, CANADA						
CHECKED	PH	DRAWING NO.		REV. C				
MFG. APPR.	N/A	D412-666		SHEET 1 OF 1				
APPROVED	#	TITLE		SCALE				
DE APPR.	d	412 GROSS WEIGHT TOW	VING KIT	1:4				
DATE 07.0	8.10	COPYRIGHT © 1999 BY DART THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPI NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATION OF THE PRIVATE OF THE SOLON SERVING AND ANY THE PRIVATE OF THE SOLON SERVING AND ANY THE PRIVATE OF THE SOLON SERVING ANY THE SOLON SERVING ANY SERVING ANY SERVING ANY SERVING ANY SERVING ANY SERVING ANY SERVING ANY SERVING ANY SERVING ANY SER	LIED ON THE EXPRE	SS CONDITION THAT IT IS				